

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year)
05 April 2000 (05.04.00)

International application No.
PCT/US99/16650

Applicant's or agent's file reference
8407

International filing date (day/month/year)
22 July 1999 (22.07.99)

Priority date (day/month/year)
24 July 1998 (24.07.98)

Applicant

WIRES, Duane, L.

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

27 January 2000 (27.01.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Jean-Marc Vivet

Telephone No.: (41-22) 338.83.38

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 09 OCT 2000

WIPO

PCT

Applicant's or agent's file reference 8407	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/16650	International filing date (day/month/year) 22 JULY 1999	Priority date (day/month/year) 24 JULY 1998
International Patent Classification (IPC) or national classification and IPC IPC(7): B29D 11/00 and US Cl.: 264/1.38, 1.7: 249/117; 425/174.4: 427/162		
Applicant OPTICAL MOLDING SYSTEMS, INCORPORATED		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets.
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
 These annexes consist of a total of 0 sheets.
- This report contains indications relating to the following items:
 - ☒ Basis of the report
 - ☐ Priority
 - ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
 - ☐ Lack of unity of invention
 - ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
 - ☐ Certain documents cited
 - ☐ Certain defects in the international application
 - ☐ Certain observations on the international application

Date of submission of the demand 27 JANUARY 2000	Date of completion of this report 12 SEPTEMBER 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer <i>M. D. Vargot</i> MATHIEU D. VARGOT Telephone No. (703) 308-0661

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/16650

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed☒ the description:

pages 1-17, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the claims:

pages 18-23, as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the drawings:

pages 1-6, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the sequence listing part of the description:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☒ The amendments have resulted in the cancellation of:☒ the description, pages NONE☒ the claims, Nos. NONE☒ the drawings, sheets/fig. NONE5. ☒ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/16650

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)

Claims 1-17, 19, 22, 24, 25

YES

Claims 18, 20, 21, 23, 26, 27

NO

Inventive Step (IS)

Claims NONE

YES

Claims 1-27

NO

Industrial Applicability (IA)

Claims 1-27

YES

Claims NONE

NO

2. citations and explanations (Rule 70.7)

Claim 18 lacks novelty under PCT Article 33(2) as being anticipated by either of Orlosky or Buazza et al (col. 18, lines 6-13). Either applied reference discloses the instant UV transparent gasket with the instant upper and lower inner edges which removably secure front and back molds and define a cavity therebetween.

Claims 20, 21, 23, 26 and 27 lack novelty under PCT Article 33(2) as being anticipated by Blum. Blum (col. 14, line 20) discloses a coating material and method using a photochromic material in a base medium being applied to a lens substrate, the base medium being an acrylate or epoxy resin.

Claims 1-17 lack an inventive step under PCT Article 33(3) as being obvious over Buazza et al in view of Blum. Buazza et al discloses the basic claimed method, composition and apparatus lacking essentially a front mold with a UV-reflective surface and a photochromic material in the resin. Blum discloses the instant photochromic material in the resin (col. 4, line 20) and a mold with a UV-reflective surface (col. 10, lines 46-50). It would have been obvious to one of ordinary skill in the art to modify the process and apparatus of Buazza et al by using a mold with a UV-reflective surface as taught by Blum to increase the amount of UV light directed to the composition. Likewise, it would have been obvious to have included a photochromic material in the resin of Buazza et al as taught by Blum to make a light-responsive lens. The mixed photoinitiator is well known in the art and would have been an obvious material selection over the single initiator disclosed in Buazza et al to facilitate the curing.

Claims 19, 22, 24 and 25 lack an inventive step under PCT Article 33(3) as being obvious over Blum. Blum discloses the basic claimed nickel mold (col. 13, line 61) lacking essentially that the reflective surface is a hard carbon surface. One of ordinary skill in the art would have found a carbon coating as an obvious modification to the polishing described in the reference dependent on the degree of UV-(Continued on Supplemental Sheet.)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/16650

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

I. BASIS OF REPORT:

5. (Some) amendments are considered to go beyond the disclosure as filed:

NONE

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):

reflectivity desired. Concerning the method claims, the substitution of an eyeglass frame or fingernails for the lens substrate of Blum would have been an obvious modification by one of ordinary skill in the art dependent on exact article desired.

----- NEW CITATIONS -----

NONE

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

15
REC'D 17 NOV 2000

WIPO PCT

Applicant's or agent's file reference 8407	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/16650	International filing date (day/month/year) 22 JULY 1999	Priority date (day/month/year) 24 JULY 1998
International Patent Classification (IPC) or national classification and IPC IPC(7): B29D 11/00 and US Cl.: 264/1.38, 1.7; 249/117; 425/174.4; 427/162		
Applicant OPTICAL MOLDING SYSTEMS, INCORPORATED		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

CORRECTED
VERSION

Date of submission of the demand 27 JANUARY 2000	Date of completion of this report 12 SEPTEMBER 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer MATHIEU D. VARGOT Telephone No. (703) 308-0661
Facsimile No. (703) 305-3230	

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/16650

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed☒ the description:pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____☒ the claims:pages (See Attached) _____, as originally filed
pages _____, as amended (together with any statement) under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____☒ the drawings:pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____☒ the sequence listing part of the description:pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☒ The amendments have resulted in the cancellation of:☒ the description, pages NONE☒ the claims, Nos. 22☒ the drawings, sheets/fig NONE5. ☒ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/16650

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)	Claims <u>1-21, 23-27</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-21, 23-27</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-21, 23-27</u>	YES
	Claims <u>NONE</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1-21 and 23-27 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest a method and apparatus for making a lens using the instant gasket with a lower inner edge having an upper surface whereby a front mold is removably sealed and held in position in the gasket. Also, the polymerizable resin with the instant mixture of photoinitiators which cures under exposure to UV light in less than two and one half minutes without the need for additional cooling or heating is not taught in the prior art nor is the front mold with a hard carbon surface for making a lens. The method of coating a substrate with a photochromic composition and curing the composition using UV light without additional cooling or heating and the instant photochromic composition also meet the criteria set forth in PCT Article 33(2)-(4) as such is not taught in the prior art.

----- NEW CITATIONS -----
NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/16650

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

I. BASIS OF REPORT:

This report has been drawn on the basis of the description,
page(s) 1-17, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the claims,
page(s) NONE, as originally filed.
page(s) NONE, as amended under Article 19.
page(s) NONE, filed with the demand.
and additional amendments:
Pages 18-23, filed with the letter of 03 August 2000.

This report has been drawn on the basis of the drawings,
page(s) 1-6, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the sequence listing part of the description:
page(s) NONE, as originally filed.
pages(s) NONE, filed with the demand.
and additional amendments:
NONE

5. (Some) amendments are considered to go beyond the disclosure as filed:
NONE

INTERNATIONAL SEARCH REPORT

International application No. . . .
PCT/US99/16650**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) : B29D 11/00

US CL : 264/1.38, 1.7; 249/117; 425/174.4; 427/162

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 264/1.1, 1.38, 1.7, 2.5; 249/117, 155; 425/174.4, 808; 427/162

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,693,446 A (ORLOSKY) 15 September 1987, see whole document	18
Y	US 5,219,497 A (BLUM) 15 June 1993, see whole document	1-17, 19-27
Y	US 5,415,816 A (BUAZZA et al) 16 May 1995, see whole document	1-17, 19-27

☐ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

14 SEPTEMBER 1999

Date of mailing of the international search report

21 OCT 1999

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

MATHIEU D. VARGOT

Telephone No. (703) 308-0661

REPLACED BY
APT 34 ANDT

5 I CLAIM:

1. A method for making a plastic lens comprising
 - providing a front mold having a reflective, non-ultraviolet (UV) absorptive inner surface;
 - providing a back mold which is UV light transmissive;
 - 10 disposing the front mold and the back mold in a UV light transparent gasket, the gasket defining a lower inner edge for removably securing the front mold to the gasket, the gasket further defining an upper inner edge for holding the back mold in a spaced apart relationship to the lower inner edge, the space between the upper and
 - 15 lower inner edges defining a lens forming cavity when the front mold and the back mold are positioned in the gasket;
 - dispensing a predetermined quantity of a UV curable lens forming resin material in the lens forming cavity, the resin material comprising at least one a polymerizable material and at least one
 - 20 photoinitiator, which cure when exposed to UV light; and,
 - exposing the dispensed resin material in the lens forming cavity to a source of UV light for a predetermined length of time at a predetermined intensity to cure the resin material.
- 25 2. The method of claim 1, in which the UV light passes through a diffusion member before the UV light passes through and cures the lens forming resin material.

3. The method of claim 2, in which the resin material in the lens forming cavity is rotated about an axis extending perpendicular to the plane of the lens during the curing of the lens forming resin material.

5 4. The method of claim 1, in which the front mold comprises a nickel material coated with a hard carbon surface.

5. The method of claim 1, in which the back mold comprises a transparent glass material.

10

6. The method of claim 1, in which the lens forming resin material is exposed to UV light for a period of two and a half minutes or less.

15 7. The method of claim 1, in which the gasket is removed, exposing the edge of the cured lens material and a force is applied at least a portion of an edge of the front and/or back molds to remove the lens from the front and back molds.

20 8. The method of claim 1, in which the photoinitiator comprises a mixture of bis (2,6-dimethoxybenzoyl)-2,4-,4-trimethylpentyl phosphine oxide and 2-hydroxy-2-methyl-1-phenyl-propan-1-one.

25 9. The method of claim 1, in which the resin material further comprises at least one photochromatic dye material.

10. A polymerizable resin material comprising: i) a photoinitiator comprising a mixture of bis (2,6-dimethoxybenzoyl)-2,4-,4-trimethylpentyl phosphine oxide and 2-hydroxy-2-methyl-1-phenyl-propan-1-one, and ii)
30 a polymer material which, when exposed to UV light for a period of two

and a half minutes or less, cures without need for the addition of heat to the polymerizable resin material.

11. The polymerizable resin material of claim 10, wherein the
5 polymer material comprises a monomer.

12. A polymerizable resin material comprising i) at least one
photoinitiator comprising a mixture of bis(2,6-dimethoxybenzoyl)-2,4,4-
trimethylpentyl phosphine oxide and 2-hydroxy-2-methyl-1-phenyl-
10 propan-1-one, ii) at least one polymer material which, when exposed to
UV light for a period of two and a half minutes or less, cures without
need for the addition of heat to the polymerizable resin material, and iii)
at least one photochromatic dye.

13. An apparatus for making a plastic lens comprising
15 a front mold having a reflective, non UV absorptive
inner surface;
a back mold which is UV light transmissive;
a UV light transparent gasket, the gasket having a
20 lower inner edge for securing the front mold to the gasket and an upper
inner edge in a spaced apart relationship to the lower inner edge for
holding the back mold in a spaced apart relationship to the front mold,
the spaced apart front mold and the back mold defining a lens forming
cavity;
25 a means for dispensing a predetermined quantity of
a UV curable lens forming resin material in the cavity, the resin material
comprising a mixture of a polymerizable material and a photoinitiator
which mixture cures when exposed to UV light in less than about two
and one half minutes; and,

a means for exposing the dispensed resin in the lens forming cavity to a source of UV light for a predetermined length of time at a predetermined intensity to cure the resin material.

5 14. The apparatus of claim 13, wherein the UV light passes through a diffusion member before the UV light passes through and cures the lens forming resin material.

10 15. The apparatus of claim 14, wherein a turn table rotates the resin material in the lens forming cavity about an axis extending perpendicular to the plane of the lens during the curing of the lens forming resin material.

15 16. The apparatus of claim 13, wherein which the front mold comprises a nickel material coated with a hard carbon surface.

17. The apparatus of claim 13, wherein which the back mold comprises a transparent glass material.

20 18. A gasket for use in making a plastic lens comprising a UV light transparent gasket having a lower inner edge for securing a front mold to the gasket and an upper inner edge for holding a back mold in a spaced apart relationship to the lower inner edge, the upper and lower inner edges defining a lens forming cavity when the front mold and the
25 back mold are removably secured in the gasket.

19. A front mold for use in making a plastic lens, the front mold comprising a nickel material coated with a hard carbon surface.

20. A method for coating a substrate comprising coating the substrate with at least one photochromatic composition and curing the coated composition.

5 21. The method of claim 20, wherein the coated substrate is exposed to a source of UV light for a predetermined length of time at a predetermined intensity to cure the coating material.

10 22. The method of claim 20, in which the UV light passes through a diffusion member before the UV light passes through and cures the coating material.

15 23. The method of claim 20, in which the substrate comprises an optical lens.

 24. The method of claim 20, in which the substrate comprises a frame for optical lenses.

20 25. The method of claim 20, in which the substrate comprises fingernails.

 26. A coating material comprising at least one photochromatic dye and at least one base medium.

25 27. The coating composition of claim 26, wherein the base medium comprises at least one of the following: cyclomethicone, mineral oil, ethyl acetate, isopropyl alcohol, butyl acetate, propyl acetate, acrylates copolymer, epoxy resin, nitrocellulose, cellulose acetate butyrate, etocrylene benzophenone-1, isostearoyl hydrolyzed keratin,

panthenol, n-butyl alcohol, polyester resin, formaldehyde resin, and the like.